

- Claims 1-4 and 6-10 using D2;
- Claims 1-5, 9, and 11 using D3; and
- Claims 1-11 using D4, D5, D6, and D7

Applicants have amended their claims into new Claims 1-8. Applicants have incorporated the subject matter of part of old Claim 5 and all of old Claim 7 into new Claim 1. This amendment obviates the rejections using D1, D2, and D3.

New Claim 1 and new Claims 2-8, which depend directly or indirectly from new Claim 1, concern a *molded article*. D4 discloses a polypropylene *sheet*. D5 discloses a flexible *film*. D6 discloses a thermoplastic *sheet*. D7 discloses a multilayered *film*. Films and sheets are extruded articles. The ratio of surface area to mass for a molded article is considerable lower than that for films or sheets, because films or sheets hardly have a third dimension. Molded articles, especially those with considerable mass relative to surface area need the benefits of the present invention. Therefore, new Claims 1-8 are also novel and inventive over D4-D7.

If there are any matters that prevent a Positive International Preliminary Report on Patentability, the Authorized Officer Examiner is invited to contact the Undersigned by telephone.

Respectfully submitted by:

February 23, 2005

Date

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What is claimed is:

1. **A molded article made from a composition comprising:**
 at least one thermoplastic elastomer having at least one
 elastomeric phase and at least one thermoplastic phase, wherein the at least one
5 | thermoplastic phase ~~comprises~~ **consisting essentially of** at least one propylene-
 based polymer and the at least one elastomer phase comprises a styrenic
 copolymer rubber phase or an at least partially crosslinked ethylene-propylene-
 diene rubber phase; and
 at least one nucleating agent for formation of nucleation sites for
10 | crystal growth within the thermoplastic phase of the thermoplastic elastomer,
 wherein the nucleating agent comprises sodium benzoate, a sorbitol
 derivative, an organic phosphate ester salt, an acrylic acid-grafted
 polypropylene, a nucleating talc, or combinations thereof, and
 wherein the molded article has been molded from the
15 | thermoplastic elastomer and the nucleating agent has enhanced the rate of
 crystal formation in the thermoplastic phase of the thermoplastic elastomer
 during cooling of the thermoplastic elastomer to achieve a solid crystal
 structure for the molded article in a shorter time as compared to melt-
 processing of the thermoplastic elastomer into the molded article without
20 | the nucleating agent.
2. **The molded article ~~composition~~ of claim 1,** wherein the at least
 one nucleation agent is dispersed within the at least one thermoplastic phase.
25 |
3. **The molded article ~~composition~~ of claim 1 or claim 2,** wherein
 the thermoplastic elastomer comprises at least two chemically distinct
 thermoplastic phases.
- 30 | 4. **The molded article ~~composition~~ of any of claims 1-3,**

wherein the thermoplastic phase comprises a continuous phase and the elastomer phase comprises a discontinuous phase dispersed in the continuous thermoplastic elastomer phase;

~~wherein the nucleating agent comprises a nucleating talc, titanium phosphate, glass powder, an aluminum inorganic, a benzoic acid or an aluminum or sodium salt thereof, a dibasic or monobasic acid salt, an alicyclic acid salt, a polyacrylic acid derivative, a phosphate ester, a sorbitol derivative, or combinations thereof.~~

5 5. The molded article composition of claim 4, wherein the nucleating agent comprises sodium benzoate, a sorbitol derivative, an organic phosphate ester salt, an acrylic acid-grafted polypropylene, a nucleating talc, or combinations thereof, and wherein the composition comprises about 0.005% to about 5% by weight nucleating agent based on total weight of the thermoplastic phase in the thermoplastic elastomer.

10 6. The molded article composition of claim 4 or claim 5, wherein the thermoplastic elastomer comprises at least one thermoplastic phase of polypropylene; and wherein the thermoplastic elastomer comprises styrene-butadiene (SB) rubber, styrene-ethylene-butadiene-styrene (SEBS) rubber, styrene-ethylene-propylene-styrene (SEPS) rubber, styrene-isoprene-styrene (SIS) rubber, styrene-ethylene-ethylene-propylene-styrene (SEEPS) rubber, styrene propylene-styrene (SPS) rubber, hydrogenated versions of the foregoing, or combinations thereof.

15 7. The composition of claim 6, wherein the thermoplastic elastomer has been melt-processed into an article and the nucleating agent has enhanced the rate of crystal formation in the thermoplastic phase of the thermoplastic elastomer during cooling of the thermoplastic elastomer to achieve a solid

crystal structure in a shorter time as compared to melt processing of the thermoplastic elastomer without the nucleating agent.

78. The molded article composition of claim 6, wherein the article has enhanced transparency as compared to an article formed from a composition without the nucleating agent.

9. ~~An article comprising the composition of any of claims 1-6.~~

10. ~~A method of making the composition of any of claims 1-6, the method comprising:~~

~~—mixing the at least one nucleating agent with at least one component of the thermoplastic elastomer to form a composition transformable into the thermoplastic elastomer;~~

15. ~~—forming the thermoplastic elastomer having the at least one nucleating agent dispersed therein by causing the at least one thermoplastic phase of the thermoplastic elastomer to melt such that the at least one nucleating agent becomes substantially dispersed within at least one thermoplastic phase of the thermoplastic elastomer.~~

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81. A method of using a nucleating agent to enhance rate of formation of a solid crystal structure in a thermoplastic elastomer **being molded into an article**, comprising the steps of:

25. adding a nucleating agent to a thermoplastic phase of a thermoplastic elastomer to form the thermoplastic elastomer composition **referred to in** of any of claims 1-76;

~~melt processing~~ **molding** the thermoplastic elastomer composition **into the article**;

30. permitting the thermoplastic elastomer composition **in the article** to cool, wherein the nucleating agent stimulates formation of a solid crystal

structure within the thermoplastic phase of the thermoplastic elastomer composition more rapidly than if the nucleating agent were not present.